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UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

POSSIBILITIES OF FOREST INDUSTRIALIZATION IN THE STATE OF GUERRERO,^{1/}

MEXICO

by

Forestal "Vicente Guerrero" (Public Entity)

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GENERAL INFORMATION PRESENTED
BY FORESTAL "VICENTE GUERRERO"

(PUBLIC ENTITY)

Country: México

Address: Av. Río Churubusco No. 650- 4o Piso
Col. Bramadero,
México 8, D.F..

Telephone: 657-23-52
657-11-79

The information included in this part, does not refer to any industrial project in particular, but to - "Forestal Vicente Guerrero" in general, considered as a regional development body, in charge of the forest operations, industrialization and marketing of forest products, as well as the socioeconomic development in the forest - areas of the State of Guerrero, México.

PART A

I. PROPONENT

1.1 Name and address of the institution:

Organismo Público Descentralizado Forestal
"Vicente Guerrero".- Av. Río Churubusco No.
650 - 4o Piso, México 8, D.F.

Telephone: 657-23-52

657-11-79

1.2 Name and title of the principal executive:

Ing. Alfonso Cerpa Salcedo

General Director

1.3 Name and title of the executive in charge of
the promotion and industrial development:

Francisco Fimbres

Studies and Projects Vice-Director

1.4 Present legal situation:

This organization is part of the Public Sector exercising the Ministries of Agriculture - and Water Resources, Programming and Budget,

of Treasury, and National Wealth and Industrial Development control over this Agency.

Date and place of legal foundation:

Mexico City,

1st August, 1972

1.5 Present number of employees: 2,229

1.6 Present activities:

This organization is charged according to -- the Presidential Decree, to manage and industrialize the forest resources of the State of Guerrero, to carry on also the marketing of the forest products, sharing the benefits -- with the landholders. The forest exploitations have to be carried out rationally and -- besides according to the forest legislation. Furthermore, it is important to mention that this Organization, as to its characteristics, is considered to be a regional development -- agency.

1.7 Banking institutions.

This entity keeps relations with:

- a) Banco Mexicano, S.A. Branch Ermita Ixtapalapa,
Mexico City.
- b) Nacional Financiera, S.A.
Isabel La Católica No. 51
México 1, D.F.

II. PROJECT DESCRIPTION

The target of this project is to obtain an integral utilization of the forest resources of the State of Guerrero, Mexico. The existing industry consists in four sawmills which have a total capacity of 80 MPT* / per shift of 8 hours (189 M³.)

The sawn wood production in 1976 amounted to 12.9 MPT corresponding to 16% of the installed capacity (one shift). This low utilization is due to the fact that three of the sawmills only started the runup during the last months of 1976.

* 1 M³ = 424 P.T.
MPT (Millar de Pies Tabla)

In 1976 were extracted 107.568 M³ (r), besides 17.175 sleepers were obtained, 641 kilometers of principal and secondary roads were constructed - and reconstructed, as well as 358 Kms. of logging roads.

The particle board plant produced 10.709 M³, --- which has an installed capacity of 67 M³/day, and finally the pulp and paper mill did not produce - more than 5,017 tons of corrugate medium and 36 - tons of pine pulp. The extreme low production is due to the fact that the sale transaction of this industry has not yet been fully accomplished and, therefore, has not been granted its own budget.

Nevertheless, it seems that the above transaction will be fully accomplished in the very near future and the Federal Government will assign a budget -- for the rest of 1977 to cover its operation costs.

As to the industry to be established in the future,

although no specific preinvestment studies have -
been elaborated, nevertheless, some projects might
result to be viable, considering the forest resources
and general indicators of the market.

The products or projects to be taken into consideration
are the following:

Sawn wood

Panels or boards of different kind

Pulp and paper

Wood boxes for package

Moulding plant

Furniture plant

Corrugated boxes plant.

Newsprint plant

Wood chemical products

Veneer plant

Prefabricated wood structures
for the construction of popular
housing.

Flooring parquet plant

Fabrication of wrapping, sacks and
paper bags.

Lumber dryers

Naturally, the determinant factor for an implementation or reject of a project will be the corresponding feasibility studies.

We think that most of these products have to be offered at the domestic market. Nevertheless, some of them could be oriented to the international market, with good perspectives.

III. MARKET

We like to present some general data referring to the following products: sawn wood, different sorts of paper, corrugated boxes, plywood and wood production.

Note: All the figures inserted in this document refer to Mexican pesos and not to dollars - as for the moment being there does not exist a fix exchange rate in the country.

WOOD PRODUCTION

VOLUME THOUSANDS M³

YEAR	PRODUCTION	IMPORT	EXPORT	APPARENT CONSUMPTION
1959	4'157	107	251	4'013
1960	4'080	139	176	4'043
1961	3'621	108	174	3'555
1962	3'918	106	173	3'851
1963	4'485	106	168	4'423
1964	4'704	151	152	4'703
1965	4'734	162	130	4'766
1966	4'854	118	101	4'871
1967	5'122	139	93	5'168
1968	5'225	148	81	5'292
1969	5'495	151	120	5'526
1970	5'917	224	106	6'035
1971	5'421	203	128	5'496
1972	5'679	250	205	5'724
1973	6'015	225	180	6'060
1974	6'671	-	176	-
1975	6'933	-	-	-
1976	7'274 *	-	-	-

Millions

No available data

* Preliminary figure obtained from S.F.F.

Source: Anuario de la Producción Forestal de Mexico (S.A.R.H., SFF)
Anuario de Comercio Exterior (S I C)

WOOD PRODUCTION
Millions of Pesos.

YEAR	PRODUCTION	IMPORT	EXPORT	APPARENT CONSUMPTION
1959	752	60	53	759
1960	776	74	38	812
1961	670	70	38	702
1962	781	69	45	805
1963	861	65	49	877
1964	901	109	43	967
1965	939	103	50	992
1966	970	97	53	1,014
1967	1,063	116	46	1,133
1968	1,082	117	53	1,146
1969	1,177	149	77	1,249
1970	1,377	206	80	1,503
1971	1,208	164	106	1,266
1972	1,314	199	185	1,328
1973	2,487	245	230	2,502
1974	3,090	260	248	3,102
1975	3,432	440 *	245 *	3,627
1976	4,017	437	438	4,016

* Estimated

Source: Anuario de la Producción Forestal México (S A R H, S F F)
Anuario de Comercio Exterior (S I C)

S A W N W O O D .

THOUSANDS M³

YEAR	PRODUCTION	IMPORT	EXPORT	APPARENT CONSUMPTION
1959	1'187	-	-	1'115
1960	1'174	85	43	1'216
1961	1'014	74	81	1'007
1962	1'125	73	44	1'154
1963	1'207	67	28	1'246
1964	1'394	106	19	1'481
1965	1'411	119	27	1'503
1966	1'384	108	15	1'477
1967	1'404	166	52	1'518
1968	1'409	184	44	1'549
1969	1'562	202	61	1'703
1970	1'731	278	49	1'960
1971	1'543	233	64	1'712
1972	1'610	253	116	1'747
1973	1'990	235	88	2'137
1974	2'123	235	83	2'275
1975	2'023	-	-	-
1976	2'188	-	-	-

Millions

No available data

Source: Anuario de la Producción Forestal México (S A R H . S F F)
 Silvicultura 76
 Anuario de Comercio Exterior (S I C)

S A W N W O O D
MILLIONS OF PESOS.

YEAR	PRODUCTION	IMPORT	EXPORT	APPARENT CONSUMPTION
1959	583	-	-	583
1960	585	41	40	586
1961	483	36	32	487
1962	570	31	42	559
1963	555	29	48	536
1964	619	66	43	642
1965	634	31	47	618
1966	631	43	39	635
1967	639	76	43	672
1968	646	79	49	676
1969	728	103	70	761
1970	846	109	68	887
1971	747	98	87	758
1972	786	127	110	803
1973	2,008	108	121	1,995
1974	2,467	115 *	125 *	2,457
1975	3,039	128 *	-	3,182

* Estimated

- No available data

Source: Anuario de la Producción Forestal México (S.A.R.H.) S.F.F.- Datos de los años 1959-1969.
Silvicultura "76 (S.A.R.H.) S.F.F.- Datos de los años 1970-1975
Anuario de Comercio Exterior (S.I.C.)

CORRUGATED PAPER

METRIC TONS.

YEAR	PRODUCTION	APPARENT CONSUMPTION
1967	59,152	59,152
1968	67,941	67,941
1969	76,543	76,543
1970	84,961	84,961
1971	96,297	96,297
1972	99,980	99,980
1973	123,951	123,951
1974	116,603	116,603
1975	111,668	111,668
1976	133,043	133,043

Enterprises

- 1.- Cartón y Papel de México, S.A., Tlalnepantla, Edo.de México.
- 2.- Celulosa del Pacifico, S.A., Tierra Colorada, Gro.
- 3.- Empaques Modernos San Pablo, S.A., San Pablo -- Xalpa, Edo de México.
- 4.- Kraft, S.A., Distrito Federal.

Note: Since there has not been any significant import and export of this product during the analyzed period, the apparent consumption corresponds to the amount of the production.

Source:

Memoria Estadística 1977 de la Cámara Nacional de las Industrias de la Celulosa y del Papel.

L I N E R P A P E R

(METRIC TONS)

Y E A R	PRODUCTION	APPARENT CONSUMPTION
1967	152,009	152,009
1968	162,642	162,642
1969	179,364	179,364
1970	197,980	197,980
1971	203,482	203,482
1972	222,495	222,495
1973	269,236	269,236
1974	332,484	332,484
1975	281,287	281,287
1976	319,072	319,072

FIRMS

1. Cajas Corrugadas de México, S.A.- Los Reyes, La Paz, Edo de Mex.
2. Cartón y Papel de México, S.A.- Tlalnepantla, Edo de Mex.
3. Cartonajes Estrella, S.A. - Distrito Federal
4. Cía. Industrial Papelera Poblana, S.A. - Puebla, Pueb.
5. Empaques de Cartón Titán, S.A. - Monterrey, N.L.
6. Empaques de Cartón United, S.A. - Distrito Federal
7. Fábrica de Papel Santa Clara, S.A.- Santa Clara, Edo.de Mex.
8. Fábrica de Papel Guadalajara, S.A.- Tlaquepaque, Jal.
9. Kraft, S. A. - Distrito Federal
10. Manufacturera de Papel Bidasoa, S. A. - Distrito Federal
11. Papelera Atlas, S.A.- Naucalpan, Edo de Mex.
12. Papelera Iruña, S.A. - Distrito Federal
13. Productora de Papel, S. A. - San Nicolás de la Garza, N.L.
14. Unipak, S. A. - Cuernavaca, Mor.

NOTE : The same as the previous table

SOURCE : Memoria Estadística 1977 de la Cámara Nacional de las Industrias de la Celulosa y del Papel.
Directorio de la C.N.I.C.P. 1977

NEWSPRINT
METRIC TONS

YEAR	PRODUCTION	IMPORT	APPARENT CONSUMPTION
1967	37,000	156,500	193,500
1968	37,456	144,518	181,974
1969	30,725	176,083	206,808
1970	40,000	240,867	280,867
1971	37,943	168,430	206,823
1972	39,664	168,880	208,544
1973	39,180	120,717	159,897
1974	40,000	194,291	234,291
1975	29,830	220,592 P	249,972
1976	56,204	207,745 P	263,949

Number of enterprises and location:

Fábrica de Papel Tuxtepec, S.A.- Tuxtepec, Oax.	1
Productora Nal. de Papel Destintado, S.A.	
Villa de los Reyes, S.L.P.	<u>1</u>
TOTAL	2

P= Preliminary figures

Source: Memoria Estadística de la Cámara Nacional de
las Industrias de la Celulosa y del Papel.
Directorio de la C.N.I.C.P. 1977

CORRUGATED BOXES

YEAR	PRODUCTION TONS	VALUE MILLIONS OF PESOS
1966	189,000	716
1967	206,000	813
1968	216,000	922
1969	217,264	919
1970	221,667	948
1971	236,147	1,038
1972	264,842	1,250
1973	312,786	1,572
1974	336,215	2,192
1975	297,102 *	2,094

* Preliminary figure

NOTE: Since there has not been any significant import and export, the apparent consumption corresponds to the amount of the production.

The current ton price of boxes is at the present moment, around \$ 9,000 Mexican Pesos.

Source: Anuario de Estadística Industrial (S.I.C.) D.G.E. 1966-1968.

Asociación Nacional de Fabricantes de Cajas de -
Cartón Corrugado y Fibra Sólida, A.C.- 1969-1976

CORRUGATED BOXES ENTERPRISES

LOCATION	QUANTITY
Baja California Norte	1
Distrito Federal	15
Guanajuato	1
Jalisco	2
México	10
Nuevo León	4
Sinaloa	3
Veracruz	1
	—
T o t a l	37

Note: The three biggest plants are located in the State of México, Sinaloa and Distrito Federal.

Source: Asociación Nacional de Fabricantes de Cajas de Cartón Corrugado y Fibra Sólida, A.C.

PLYWOOD
THOUSANDS M³

YEAR	PRODUCTION	IMPORT	EXPORT	APPARENT CONSUMPTION
1965	66'300	2.4	3.1	65'600
1966	76'100	4.8	2.0	78'900
1967	78'000	7.5	2.2	83'300
1968	78'300	7.7	2.1	83'900
1969	84'400	7.8	2.0	90'200
1970	99'500	5.5	2.3	102'740
1971	115'900	8.6	0.4	124'088
1972	123'600	11.5	0.6	154'466
1973	119'100	9.3	0.9	127'500
1974	133'700	15.6	0.4	148'900
1975	143'567	14.1 *	0.8 *	156'847

• Millions

* Estimated

Source: Silvicultura '76 (S.A.R.H.) S.F.F. - Datos 1970 - 1975.
Asociación Nacional de Fabricantes de Tableros de Madera, A.C.-Datos 1965-1969.

IV. AVAILABILITY OF WOOD AND OTHER

AUXILIARY MATERIALS

A. Non Elaborated Raw Material

4.1 Logs

a) Commercial name and botanic name of the species.

Pine	Pinus sp.
Mexican sacred fir (oyamel)	Abies sp.
Oak	Quercus sp.
Ayacahuite	Pinus ayacahuite

b) Size of logs

The diameter of the logs used, vary from 15 --
cm. to 1.50 M. with a length of 2.54 M. to --
4.90 M.

c) Price

This entity obtains the standing wood, pa --

ying the corresponding stumpage at the following prices:

For plywood and sawn wood \$ 127.00 to \$ 200.00 per M³. Like raw material for pulp \$ 30.00 -- per M³ of coniferous or broadleaved wood.

4.2 Forest Resources

The total national forest area covered by cold-temperate and warm climate (wet or dry) forest, reaches 44,907,081 hectares, composed approximately of 30 millions of cold-temperate forests -- and 15 millions of warm climate forests.

In the State of Guerrero, the forest area in -- which temperate and cold climate forests prevail, amounts to 2,118,389 hectares, 60% of which is -- formed by stands of pine, mexican sacred fir (oymel) and oak, and in minor scale other species.

The total volume of wood in M³ (r) found in these forests amounts to 189,155,149 M³, according to -

an inventory carried out in 1972, the 55% corresponding to the coniferous forests, 40% to broadleaves and 5% of association of coniferous forests and broadleaves.

The yearly current volume growth reaches - - - 1'502.673 M³ (r) 93% of which consist in coniferous, 1'205.579 M³ of this increase as produced by different species of the gender Pinus.

In the coastal region, which covers 1'500.000 hectares, approximately half of the zone is considered to be forest area, 20% of which is formed by wooded zones, 70% by shrub zones and 10% of not wooded zones.

The wooded zone which represents 164.150 hectares, is covered to 43% and 49% by subtropical forests (subperennifolias and subdeciduas respectively) and the rest 8% are mountain forests (mesófilos).

Forest concessions

Before the foundation of Forestal "Vicente Guerrero" an area of 929.000 hectares had been concessioned having 991.000 M3 of cutting rights, the exploitation of which reached only 39%.

Actually, the forest concessions in the State of Guerrero represent an area of approximately 1'000.000 hectares with a duration which fluctuates from 25 to 50 years. The mentioned concessions have been granted in 1952, 56,58 and 69.

However, the forest concessions and permissions granted in the moment Forestal "Vicente Guerrero" was constituted and given the legal right of wood exploitation in the State of Guerrero, are revokable and will be cancelled.

In fact, one of the concessionaires "Chapas y Triplay", S. de R.L. has already given its con-

cession to this Organism. Furthermore, the -
Unity of Forest Exploitation "Los Gallardos" -
has granted a legal concession to Forestal "Vi-
cente Guerrero" in order to carry forward the -
forest exploitations in the authorized area.

In 1975, 543 permissions have been conceded at
a national level, covering an area of 9.89 mi -
llions of hectares and an authorized volume of
11.664 millions M³r. only 6.9 millions M³r. --
have been produced, which represents 59% of --
what had been authorized.

The State of Guerrero held the 11th place in -
1975 with respect to wood production, 136,000 -
M³r of the 6'933,000 M³r national total, corres -
ponding to the mentioned State, which means --
that its participation represents only 2%.

End-use of the wood production

According to data worked out by the Subsecretaría

ry of Forests and Wildlife in 1974, the main part of the national wood production is handled as follows:

<u>END-USE</u>	<u>PERCENTAGE</u>
Construction	57.2
Pulp	22.6
Firewood	8.2
Sleepers	7.2
Veneer and plywood	4.1
Containers	3.7
Other uses	3.0

Forest inventory

The State of Guerrero disposes of a forest inventory at the scale 1:50,000 since 1972, the main characteristics of which are the following:

The forest inventory has mainly been realized along the forest massive where the temperate and cold climate species prevail. An aerophotogrammetric inventory has been made with ground sampling in order to elaborate mapping (qualitative and quantitative).

In the coastal region where the warm climate -- (wet or dry) prevails, a forest mapping has been realized (quantitative) by means of cartographic integration, intensive aerial recognitions, -- ground observations, and other sorts of specialized information.

Beside the forest inventory, a dasonomic study is available, belonging to one of the forest concessions, and lately, desonomic studies corresponding to the coastal region of the State have been carried out, these on a scale 1: 20,000.

It will be interesting to mention that probably the forest resources in the State of Guerrero

are underestimated for what we may appreciate -
from some lately realized partial studies at the
before mentioned scale.

Payment of fees and taxes in forest exploitation

In the following pages we state the description
of various payments which are effected by means
of fees and taxes which apply to the forest ex-
ploitation.

Wood production costs.

We like to state the fixed and variable costs,
estimated in a determinant exploitation zone,
as follows in page 28. Obviously the production
costs of wood are likely to vary according to the
different regions.

FORESTAL "VICENTE GUERRERO"

ORGANISMO PUBLICO DESCENTRALIZADO

STUMPAGE,

FORESTS TAXES, FEES AND FOREST DOCUMENTATION
(Pesos)

Products	Stumpage (2)	Forests Taxes	Peasants' Training Fee	Reforestation Fee	S.F.F. Fee	Forestry Commission of Guerrero State
1.- Wood for plywood	150.00/M ³	20.60/M ³	1.06/M ³	5.00/M ³	1.20/M ³	5.00/M ³
2.- Pine and oyamel wood for sawing M ³ (r) (the basis is determined by multiplying the estimated sawing coefficient-60 to 65% by M ³)	127.11/M ³	20.60/M ³	1.06/M ³	5.00/b	0.60/M ³	2.50/M ³
3.- Pine and oyamel wood for pulp	30.00/M ³	5.00/M ³	1.06/M ³	2.50/M ³	0.60/M ³	1.25/M ³
4.- Oak wood for pulp (M ³ r)	20.00/M ³	5.00/M ³	1.06/M ³	2.50/M ³	0.60/M ³	1.25/M ³
5.- Branch wood	6.00/M ³	0.24/M ³	1.06/M ³	2.50/M ³	0.60/M ³	1.25/M ³
6.- Small logs	12.00/M ³	10.30/M ³	1.06/M ³	2.50/M ³	0.60/M ³	1.25/M ³
7.- White cedar wood	80.00/M ³	20.60/M ³	1.06/M ³	2.50/M ³	0.60/M ³	1.25/M ³

Forest Documentation

For each documentation the following costs are payed:

Fees	\$ 450.00
Remission set	0.40
Documentation	0.50
Bank commission	30.00
Copies	<u>16.00</u>
T O T A L	496.90

b = Base

- (1) The basis is determined by multiplying the sawing coefficient -50% by the factor 11.36 and per cubic meter.
- (2) 50% of these stumpage fees, collected by the Fondo Nacional de Fomento Ejidal in favor of the common fund of each "ejido" or community; and the other 50% are deposited at the name of the commissary of the ejido or the community, in order to constitute a fund for productive investments, planned for the General Assambliies and with the approval of the respective delegation.
- (3) This quote is paid to the Executive Central Supply Commission of National Mexican Railroads.

ORGANISMO PUBLICO DESCENTRALIZADO

FORESTAL "VICENTE GUERRERO"

FEEES FOR 1977

TABLE No. 1 FIXED COSTS OF PRODUCTION

ITEM	PINE WOOD	PESOS PER M ³			
		PINE AND /OR OYAMEL		OAK	
		Firewood 4'	Logs 7'	Firewood 4'	Logs 7'
Stumpage (°)	128.00	- . -	40.00	- . -	30.00
Dasanomic study (+)	15.00	- . -	- . -	- . -	- . -
Forest technical servi ces (+)	30.00	- . -	- . -	- . -	- . -
Forest taxes and fees	<u>20.00</u>	<u>- . -</u>	<u>10.00</u>	<u>- . -</u>	<u>10.00</u>
Subtotal (1)	193.00	- . -	50.00	- . -	40.00

TABLE No. 2 VARIABLE COSTS OF PRODUCTION

Felling and cutting	17.00	56.00	17.00	66.00	19.00
Peeling (*)	8.00	- . -	8.00	- . -	8.00
Mechanical hauling	38.00	47.00	38.00	47.00	38.00
Mechanical loading	21.00	- . -	21.00	- . -	21.00
Logging road construc- tion.	89.00	- . -	- . -	- . -	- . -
Forest management	36.00	- . -	- . -	- . -	- . -
Manual loading	<u>- . -</u>	<u>7.00</u>	<u>- . -</u>	<u>8.00</u>	<u>- . -</u>
Subtotal (2)	209.00	110.00	84.00	121.00	86.00
T O T A L (1) + (2)	402.00	110.00	134.00	121.00	126.00

(°) Data liable to modification according to fees to be authorized by the Land Reform Ministry (S.R.A.)

(+) Total tree M³

(*) Only for infested wood and in case of peeled logs during the raining season for reasons of protection.

FREIGHT RATES

<u>Specie</u>	<u>Logging Road</u>	<u>Recovered</u>	<u>Pavement</u>
Oak 7' on	\$2.65 M3 /km	\$0.90 M3/km	\$0.80 M3/km
Pine and oyamel 7' on	2.50 M3 /km	0.90 M3/km	0.70 M3/km
Pine 8 1/2' on	2.50 M3 /km	0.90 M3/km	0.70 M3/km
Pine or firewood	2.05 M3 /km	- - -	0.60 M3/km

Note : These costs were adjusted in a 20% because of freight

Forest exploitation methods.

Actually the felling is carried out by motor sawing machines using mechanical methods, as motor-cranes, winches, tractors and cables in order to transport the logs from the felling place to the loading place.

B. Semi- Elaborated Materials

4.3 Sawn Wood

As follows, a table referring to sawn wood, specifying that all the wood to be sawn, belongs to the gender Pinus.

PRICE LIST PER M.P.T.
(FOB PRICE SAWMILL)

M E A S U R E S P I N E	Q U A L I T Y		
	FIRST	SECOND	THIRD
1/2" t.a. x 8 1/4'	7,440.00	6,545.00	4,800.00
3/4" t.a. x 8 1/4'	6,780.00	6,240.00	4,560.00
1" t.a. x 8 1/4'	6,600.00	5,760.00	4,440.00
1 1/2" t.a. x 8 1/4'	6,600.00	5,760.00	4,440.00
2" t.a. x 8 1/4'	6,600.00	5,760.00	4,440.00
3 1/2" t.a. x 8 1/4' on	*	*	4,320.00

M E A S U R E S A Y A C A H U I T E	Q U A L I T Y		
	FIRST	SECOND	THIRD
1/2" t.a. x 8 1/4'	7,800.00	7,200.00	5,616.00
3/4" t.a. x 8 1/4'	7,200.00	6,240.00	4,800.00
1" t.a. x 8 1/4'	6,960.00	6,120.00	4,320.00
1 1/2" t.a. x 8 1/4'	6,960.00	6,120.00	4,320.00
2" t.a. x 8 1/4'	6,960.00	6,120.00	4,320.00
3 1/2" t.a. x 8 1/4' on	*	*	4,200.00

* Thickness of more than 2" will be realized according to order and will have a prime rate of \$100.00 per M.P. in first and second quality. For lengths of 10' a prime rate of \$150.00 M.P. is stated, lengths of 12' \$200.00, and of 14' to 20' \$300.00.

Exclusively for the city of Chilpancingo and surroundings, sales of less than 8 M.P.T. will be effected with a prime rate of - \$100.00/ M.P.T.

t.a. = Todos los anchos = any largeness.

Logs length 8 1/4'

V. PROCEDURE OF FOREST EXPLOITATION

5.1 Site and services

- i) Distance between the forest area and the -
sawmills.

The distance between the operating saw --
mills and the cutting area, which supplies
the wood, is the following at the present
time:

<u>Saw mills</u>	<u>Km Cutting Area</u>
Tecpan I	75
Tecpan II	75
Las Salinas (Coyuca)	75
Chilpancingo	90
Las Vigas (Ometepec)	85
Papanoa	90

- ii) Transport of the logs to the saw mills or to the production units.

Generally, transport is made by means of non-specialized trucks, with a capacity of 10 to 12 tons (from 14 to 17 M³ of wood).

The Guerrero State disposes of some paved public roads (highways), the most outstanding of which is Mexico City-Acapulco with a length of 405 Km crossing the State in the middle.

The highway Acapulco-Zihuatanejo is completely paved and located in the coastal part. Moreover, some other paved and recovered highways are available which complete the net-work road of the State.

However, it has to be pointed out that, in order to realize forest exploitation, logging roads are being built, the costs of

which are being charged to the annual operation costs. Due to climatological influences, roads are easily destructed and have constantly to be reconstructed.

iii) Round wood

The round wood obtained since 1973 have -- been as follows:

Year	1973	1974	1975	1976
M ³	11,019	72,693	107,959	107,698

At the present time, the organism owns the following machinery and forestry exploitation equipment.

Roads

	<u>UNITS</u>
Caterpillar tractors (different models)	16
Traxcaves	3

	<u>UNITS</u>
Scrapers	2
Dumping trucks	25

Cutting

Saw machines.- It is the organism's policy to obtain saw machines, selling them - at the same price to the forest landholders with facilities and on account of -- their wood liquidation.

	<u>UNITS</u>
Motor-cranes	45
Trucks and pick-ups	40

5.2 Rains and Snowfall

The wood exploitation is interrupted from July to October because of the raining season.

VI. FINANCING FOR THE DEVELOPMENT OF FORESTAL "VICENTE GUERRERO"'S ACTIVITIES.

Since the foundation of the Organism, its financial needs have been covered by budgets authorized by the Federal Government.

Authorized budgets of Forestal "Vicente Guerrero"

<u>Year:</u>	1973	1974	1975	1976	1977
<u>Millions of Pesos:</u>	117	133	231	311	338

As the table shows, the Organism's budgets state an annual increase, its resources traditionally are integrated from contributions and subsidies of the Ministry of Treasury, domestic financing through Nacional Financiera. S.A., and by own-incomes, derivated from the sales of forest products.

According to dispositions of the Ministry of Treasury, the Organism depends on the authorization of the same institution in order to obtain any kind of credit.

* Detail budgets are accompanied.

For the present time, the organism has not --- applied for financing in any financing institution or development bank of any kind.

For the financing of future activities of the - Organism, especially with a view to eventual fo- reign collaboration, several sources of resour- ces are available, such as; contributions and - subsidies of the Ministry of Treasury, own in - comes of the organism, domestic financing, ex - ternal financing, stocks of the enterprise to - be constituted, direct foreign investment, sup- pliers' credit and other resources.

Nevertheless, it is important to stipulate that according to the corresponding law, forestry con- cessions are not being issued to foreigners, -- which indicates that there is no possibility of foreign investment during the forest exploita- - tion phase. Investment during the mentioned -- phase is strictly reserved to nationals.

Direct foreign investment, according to the res
pective legislation, may participate with a 49%
of equity capital during the wood industrialisa
tion phase, reserving the 51% to the nationals
integrated, either by the public sector and/or
the private sector.

F O R E S T A L " V I C E N T E G U E R R E R O "
ORGANISMO PUBLICO DESCENTRALIZADO
AUTHORIZED BUDGETS 1973 - 1977

	1973	1974	1975	1976	1977
<u>R E C E I P T S</u>					
Subsidies and grants					
Grants for investment	33,500	10,000	45,305	70,000	46,000
Subsidies for operation	7,500	6,625	46,406	48,583	83,500
Subsidies for liabilities' payment.	-	-	<u>15,038</u>	<u>27,012</u>	<u>55,093</u>
S U M	41,000	16,625	106,749	145,595	184,593
Own incomes					
Sale of goods	72,000	65,400	89,472	142,408	133,270
Sale of services	1,000	500	-	-	-
Other incomes	1,000	500	235	235	500
Sale of assets	-	155	30	30	154
Incomes from thirds	1,500	8,400	7,568	13,200	17,275
Incomes from recovery expenditure.	400	380	10,400	10,000	2,000
Domestic finance.	-	<u>41,003</u>	<u>17,000</u>	-	-
S U M	75,900	116,338	124,705	165,873	153,199
T O T A L	<u>116,900</u>	<u>132,963</u>	<u>231,454</u>	<u>311,468</u>	<u>337,792</u>
<u>E X P E N D I T U R E S</u>					
Investment pay-roll	-	3,017	846	11,459	9,505
Machinery and equipment	90,000	37,472	42,657	34,139	25,817
Other investment expenditure	9,000	10,837	8,503	10,844	3,182
Maintenance of goods, movables and immovables.	<u>1,000</u>	<u>5,874</u>	<u>10,299</u>	<u>13,558</u>	<u>11,433</u>
S U M	100,000	57,200	62,305	70,000	49,937

	1973	1974	1975	1976	1977
Operation pay-roll	8,300	28,500	46,297	74,159	110,795
Operation goods purchase	2,000	8,213	17,083	22,350	23,047
Federal taxes	1,000	4,674	1,722	2,879	2,284
Other operation expenditures	3,700	26,482	56,205	76,282	95,439
S U M	15,000	67,869	121,307	177,670	231,565
Liabilities' payment	--	--	15,038	27,012	27,013
Interest payment charged to operation costs	--	--	10,122	13,586	10,002
Interest payments charged to investment costs.	--	--	4,714	--	--
Expenditures originated from incomes of thirds	1,500	7,394	7,568	13,200	17,275
Recovery expenditures	400	500	10,400	10,000	2,000
S U M	1,900	7,894	47,842	63,798	56,290
T O T A L	116,900	132,963	231,454	311,468	337,792

VII. DESIRED FOREIGN CONTRIBUTION

Forestal "Vicente Guerrero" is likely to consider several forms of foreign collaboration, including the following ones:

Participation in the equity capital, maximum until 49%, loan, supplier's credit, availability of machinery and equipment, transference of technology, and turnkey contract.

The participation in foreign marketing also may be considered in case of a project oriented to export markets.

Considering that Forestal "Vicente Guerrero" is the only one to figure legally as forest exploiter in the Guerrero State, other alternatives of foreign contribution may be taken into account.

For example, another kind of participation in the equity capital, as mentioned before, but the coun-

ter part participating from the formulation of pre-investment studies, either by financing or elaboration of the same, by means of collaboration of human resources belonging to both interested parts.

Another alternative, the organism could be interested in, would be the elaboration or pre-investment studies by means of a Consulting Firm, - the costs of which would be absorbed by the -- same firm, in exchange with a participation in shares of the enterprise to be established.

This participation would not be restricted to the corresponding value of the costs of the studies in question, in case the consulting firm - requests a higher participation.

The before mentioned proposals represent some of Forestal Vicente Guerrero's forms to cooperate with national or foreign institutions or investment organisations, which does not exclude other alternatives to be considered with - greatest interest, in case they arise.

VIII. INCENTIVES

8.1 Position of Forestal "Vicente Guerrero" with reference to government policy, regarding forestry industry.

In general, the traditional utilization of the forests which have been realized not long ago, had been carried out in an irrational manner.

In fact, the forest exploitation in certain zones was quite inconvenient, i.e. in certain regions, forests have been over-exploited and others stayed completely untouched, this, of course, with negative consequences from the political, social and technical point of view.

The main part of the traditional exploitations did not accomplish their obligations, regarding the corresponding forestry concessions. Particularly, the forest landholders have not improved their standard of living.

For the same reasons the Federal Government is following a new forest policy, creating public decentralised entities which operate within --

their corresponding hinterland in order to exploit the integral wood resources making the landholders participants of the benefits. This is, among others, how the Federal Government created the Public Decentralised Organism Forestal "Vicente Guerrero", the 1st August, 1972, - the official authorized budgets of which have been increased year by year.

8.2 Possibilities of imported machinery and equipment for the establishment of industrial enterprises.

Generally, if there is machinery and equipment available, which is made in the country and is compatible in quality, price, and supply, obviously an eventual importation will be unnecessary.

Regarding the machinery and equipment particularly for the forest industries, there seems to be no difficulty in obtaining import permissions, although very defined policies of protection of the national industry are being adap

ted by the government. For the moment there is no sufficient industry specialized in manufacture of machinery and equipment for the forest sector.

The Federal Government, having a particular interest in industrial development promotion in regions of relative economic development, has issued various decrees which will be of great benefit for the industrial enterprises to be established within the mentioned regions, as long as they meet with important socio-economic needs.

Taking this into account, the country has been divided in three zones, the aids, incentives and facilities of which increase according to their classification into zone I, II and III.

The State of Guerrero is exactly located in zone III. The enterprises to be established or expanded in this State, will accordingly enjoy the following exemption or reduction of taxes:

- i From 60% to 100% of import taxes and their similars on machinery and equipment.
- ii From 60% to 100% of the stamp duty.
- iii From 60% to 100% of income tax which corresponds to the profits resulting from transfer of real estates of the fixed assets of the enterprises.
- iv Authorization to carry out accelerated depreciation on machinery and equipment.
- v From 60% to 100% of the import tax and similars on raw material, spare parts, machinery, equipment and accessories.
- vi From 15% to 40% of income tax on the total receipts of the enterprises.

8.3 The industrial promotion policy of the Federal Government includes also a special treatment towards new and necessary industries.

Industrial development is envisaged by means of tax exemptions which are supposed to stimulate the establishment to new industrial activities.

ties and improval of the existing ones.

Within this promotion, new industries are considered, those which manufacture merchandise - which is not being produced in the country, as long as they do not represent a mere substitute of the national production and, furthermore, - they should improve considerably the economic development. The necessary industries to be taken into consideration, are those, the purpose of which is the production of merchandise which is not being produced in sufficient quantity in the country, i.e. their deficit being obvious - and not arising from transitory reasons.

Moreover, aids, incentives and above mentioned exemptions on sales taxes may be granted. The terms of these facilities will be stipulated by the Ministry of Treasury and vary from 5 to 10 years according to the specific case.

8.4 In fact, a formal policy concerning the develop

ment and protection of the domestic industrial plant is adapted in the country, so that incentives become more significant regarding the degree of the economic development of the region- where the industrial enterprises will be established or expanded, as well as the relative importance, these enterprises would represent for the regional and/or national economy.

The before mentioned has to be taken into account with respect to the policy of protection against competitive imports, mainly in the case of infant industries.

However, for each specific product it will be necessary to study carefully the actual trade treaties of the interested parts, so to be aware of the restrictions and facilities on import duties and consequently the competitive international position of the enterprise in question.

8.5 Within the national investment policy and indug

trial promotion, priority is given to the enterprises which orientate their production towards the foreign market or commercialise already - their products towards the same market, in what respects gain and/or saving of foreign exchange necessary for the development of the country.

Actually, besides of banks and traditional financing companies, institutions like "Fondo de Equipamiento Industrial" (FONEI), "Fondo para el Fomento de las Exportaciones de Productos Manufacturados" (FOMEX) and "Banco Nacional de Comercio Exterior" are at the country's disposal.

The purpose of the first mentioned institutions is the promotion of the establishment, expansion or modernization of industrial enterprises, the production of which is partially assigned to foreign markets, which substitute import products in an efficient way or which realize other activities in order to save or to gain foreign exchange, their operations mainly consisting in -

financing the installation, expansion and/or modernization as well as the purchase of machinery, equipment and other goods.

The last two institutions assist the industrial enterprises by means of the common operations in exportation of manufactured products.

Finally, there are special agreements disposing the following: products, manufactured in national territory, the indirect taxes and the general import taxes, in amounts that vary according to the degree of national manufacture of the products, which are exported, have to be returned to the exporters as follows:

<u>Decree of national manufacture</u>	<u>Devolution of indirect taxes.</u>
From 40 to 49%	50%
From 50 to 59%	63.6%
From 60 on	100%

As to the General Import Tax, caused by the import inputs, included in the exported article, the exporter may also claim a devolution of the mentioned tax.

The reimbursements are granted by means of tax devolution certificates (CEDIS), and are issued by the Ministry of Treasury. They are used exclusively for federal tax payments.

IX. GENERAL INFORMATION

9.1 Legal structure of the enterprises to be established.

The policy followed in this aspect is to constitute enterprises under the legal system of Stock Companies.

9.2 Preinvestment and feasibility studies

There is not a general complete study available, however, certain partial aspects may be conside-

red to be part of the corresponding feasibility studies either referring to the integral utilization of the forest resources or to the specific industrial projects.

Actually, the competent area of the organism is preparing studies, related to specific industrial projects at the level of industrial profile. For the elaboration of the studies in their posterior phase pre-project and final project, the cooperation of a qualified firm can be taken into consideration.

The preparation of industrial profiles, the estimation of investment, particularly concerning machinery and equipment, has been based on former quotations in order to save time, considering that these quotations need a certain time of preparation.

This is why the mentioned quotations have been adjusted to the actual economic conditions try-

ing to obtain utmost achievement with a view to industrial profiles.

Forestal "Vicente Guerrero" is aware of the necessity of pre-investment studies, either during their profile phase, pre-project or final project, before the establishment of industrial plants.

Actually, these studies are most valuable elements and indispensable for the industrial promotion as well as for the authorization corresponding to the investments and financing, either by the Federal Government, financing institutions, other investment institutions or eventual investors. Consequently, the insurance of financing and realization of these studies represent a very important factor.

9.3 Other interesting aspects for foreign investors.

By means of general market data, already available in the country, it is easy to ascertain the

need to meet the demand of various forest products. This fact is of great significance in order to improve the possibilities of marketing of forest products in the actual and the near future market. Within the economic system of the country prevails since a long time the system of the mixed economy, which, regarding the recent events in the national economic situation, is turning out to be an important factor in order to obtain a fast improvement of the general situation.

In fact, the Federal Government has signed various agreements of cooperation with the Private Sector and State's Government within the principal program of actual administration, called -- "The Alliance for the Production", where an important part is reserved for the Private Sector.

Nacional Financiera, S.A. which is the most important official development bank of Mexico, has established a special trust with resources from

foreign and national origin, in order to promote industrial projects with foreign participation.

Until now, the same regular and constant policy has been followed, as to direct foreign investment: the free money exchange repatriation of capital and some other attractive measures for the benefit of the foreign investor.

CONCESIONES FORESTALES EN 1975

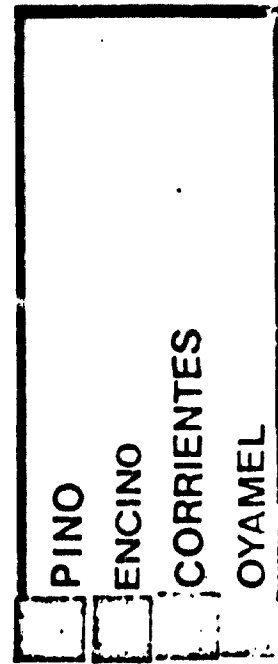
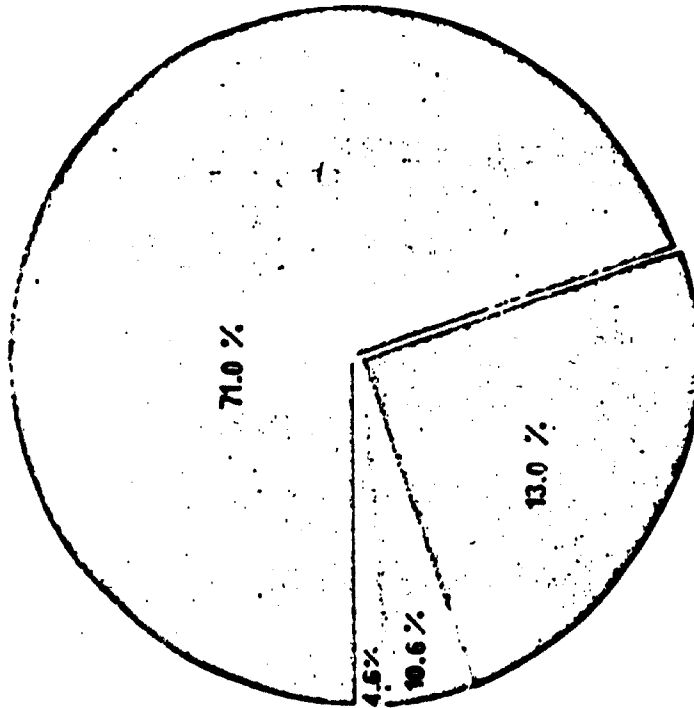
En 1975 los permisos otorgados por la Subsecretaría Forestal y de la Fauna para la explotación del bosque fueron 543 que ampararon 9.8 millones de hectáreas y 11.6 millones de M³, muy superiores, a la producción obtenida que en 1975 ascendió a 6.9 millones de M³ y a la superficie explotada de 7.2 millones de hectáreas.

Este fenómeno, que se ha hecho tradicional, demuestra que la actividad forestal en México tiene una capacidad utilizada que no va de acuerdo con las existencias de grandes volúmenes susceptibles de ser explotados. Entre las razones de este fenómeno se pueden citar el desperdicio de algunas porciones del árbol en el monte; la existencia de bosques en áreas inaccesibles o hacia los cuales hay que construir caminos cuyo costo es muy elevado; e igualmente se presentan problemas de índole administrativa y de relaciones sectoriales que obstaculizan el desarrollo de la silvicultura.

En lo referente a las concesiones forestales por tipos de especies, el pino ocupa el primer lugar con una participación del 71.0 %, seguido del encino que representa el 13.0 %. Para el mismo año de 1975 las concesiones forestales por tipo de propiedad se realizaron de la siguiente manera: las unidades mixtas representaron el 50.9 %, los ejidos y comunidades el 28.2 %, los particulares el 20.6 % y por último, un 0.3 % corresponde a los terrenos nacionales.

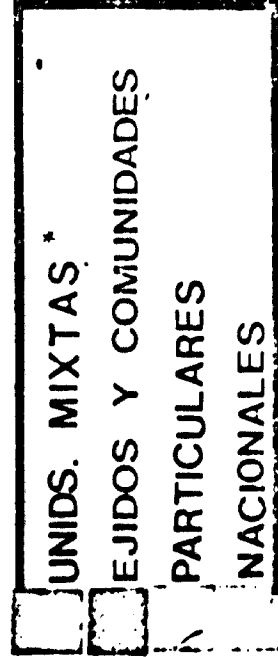
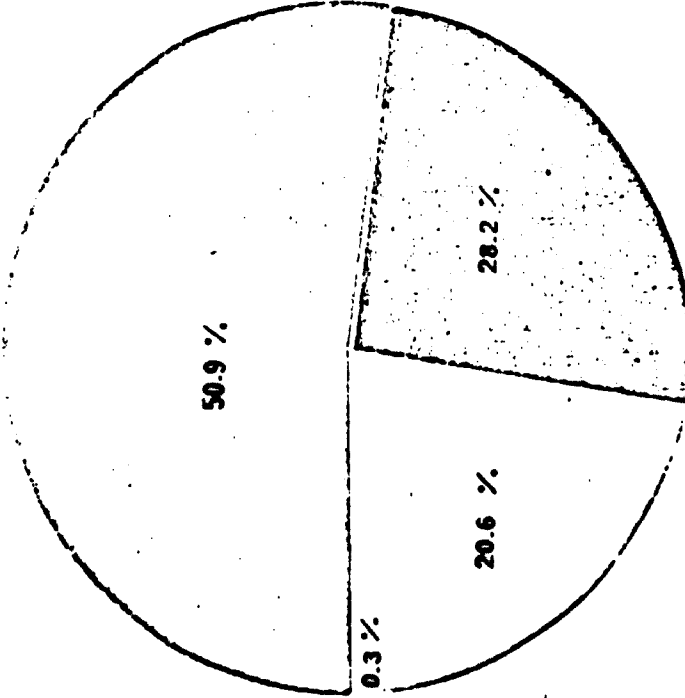
CONCESIONES FORESTALES EN 1975
TOTAL 11 664 400 M³ rollo

por especie



FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en la información proporcionada por la Dirección General de Aprovechamientos Forestales de la Subsecretaría Forestal y de la Fauna. SAG.

por tipo de propiedad



* Se refieren a Unidades Industriales, Unidades de Ordenación y Empresas Descentralizadas, las cuales incluyen todo tipo de propiedad.

**Concesiones Forestales Autorizadas durante el año de 1975 por
Especie miles m³r**

	P I N O	ENCINO	CORRIENTES	PRECIOSAS	OYAMEL	T O T A L
PERMISOS NUEVOS	834.6	113.3	46.7	11.6	167.6	1,173.8
APROVECHAMIENTOS UNICOS	305.1	22.3	1.7	2.3	24.4	355.8
DESMONTES	2.4	1.3	728.3	18.1	-	750.1
PASOS DE AÑO*	7,142.8	1,381.6	462.1	51.9	346.3	9,384.7
T O T A L	8,284.9	1,518.5	1,238.8	83.9	538.3	11,664.4

* Permisos vigentes.

Fuente: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal en base a los datos proporcionados por la Dirección General de Aprovechamientos Forestales.

Concesiones Forestales Autorizadas durante el año de 1975 por Tipo de Propiedad miles m³r

	EJIDOS Y COMUNIDADES INDIGENAS	PARTICULARES	UNIDADES INDUSTRIALES*	NACIONALES	T O T A L
NUM. DE PERMISOS	241	251	45	6	543
SUPERFICIE CONCESIONADA (miles Has.)	2,405.7	1,107.5	6,309.5	69.1	9,891.8
VOLUMEN AUTORIZADO (miles M ³ r)	3,289.1	2,400.1	5,936.2	39.0	11,664.4

* Incluye ejidos, comunidades y pequeños propietarios.

Fuente: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal en base a los datos proporcionados por la Dirección General de Aprovechamientos Forestales.

Industria Forestal

En el sector forestal destacan las industrias que se abastecen de los recursos boscosos, como las de celulósicos, aserrío, tableros de madera y no maderables (resina y barbasco, principalmente).

Con respecto a la participación geográfica de las diferentes industrias, se observa que 3 estados, Michoacán, Durango y Chihuahua, concentran el 60.6 % de los aserraderos. En el caso de los celulósicos, el mayor número de empresas se concentra en el Estado de México (59 %).

La industria con mayor valor agregado por unidad de producción es la mueblera, seguida por la fabricación de envases de madera y conexos. Asimismo, las industrias con mayor productividad del capital se ubican en la elaboración de muebles y fabricación de papel y cartón.

En cuanto a capacidades instaladas y utilizadas, la industria del papel en su conjunto es la que trabaja a mayor capacidad global (84.6 %), sobresaliendo el papel para periódico, que utiliza el 100 % de su capacidad. A su vez las industrias de celulosa, aserrío, tableros, resina y barbasco, muestran capacidades utilizadas de 76.6 %, 67.6 %, 68.1 %, 55.0 % y 70.0 %, respectivamente.

Los celulósicos ocupan el primer lugar en los rubros de inversión total (6 500 millones de pesos) y personal ocupado, proporcionando empleo a 22 000 personas. Le siguen el aserrío y los tableros de madera, con 1 200 y 900 millones de pesos respectivamente, con un total de 8 000 personas ocupadas en el primero y 5 600 en los segundos.

En el renglón de comercio exterior el papel (principalmente papel para periódico) registra el mayor volumen importado del sector (con exportaciones prácticamente nulas) contribuyendo así de una manera importante al déficit de la balanza comercial de productos forestales.

Localización Geográfica de la Industria Forestal Mexicana

- 1975 -

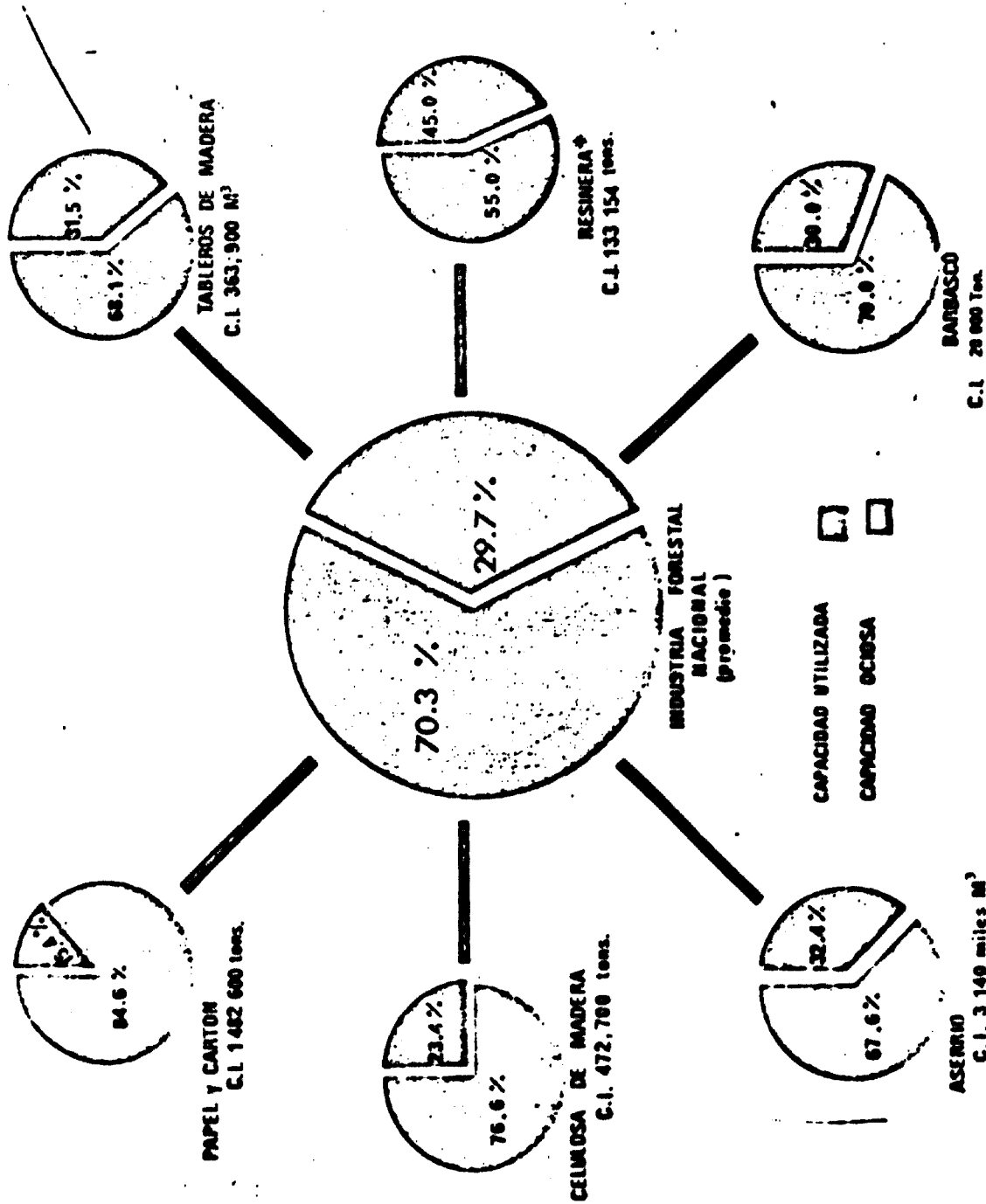
ESTADO	ASERRIO	CELU- LOSA*	PAPEL	CELULOSA Y PAPEL (INTEGRADOS)	TRIPLAY	TABLETOS ACLONERADOS DE FIBRA	TABLEROS DE FIBRA	RESINA DE PINO	BARBAJCO	TOTAL
Aguascalientes	1									1
Baja California Nte										
Baja California Sur										
Campeche	27				1					28
Coahuila	2									2
Colima	6									6
Chiapas	37				3					40
Chihuahua	176	1	2		4	1				184
Distrito Federal	10		9	2	1				1	23
Durango	160				4		1			167
Guanajuato	2	1								3
Guerrero	10			1		1		1		13
Hidalgo	1				1					2
Jalisco	17		4	1						22
México	8	7	13	6	4	2		3		25
Nichoacán	54				1			2	4	46
Morelos			1					22		77
Nayarit	3									1
Nuevo León	16		2	2						4
Oaxaca	30			1		1				20
Puebla	4		2					2		35
Querétaro										
Quintana Roo	19				1					20
San Luis Potosí	1		1			1				4
Sinaloa	3									3
Sonora	4									4
Tabasco	21									21
Tamaulipas	12	1								13
Tlaxcala	1	2								3
Veracruz	13		2	2	2				1	20
Yucatán					2					3
Zacatecas	5					1				6
TOTAL	643	12	36	15	26	9	2	31	6	780

FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal en base a datos de ANAFATA, C.N.I.P., Anuarios de la Producción Forestal de México, SFF - SAG.

* Incluye todo tipo de celulosas.

UTILIZADA DE LA INDUSTRIA FORESTAL

1974

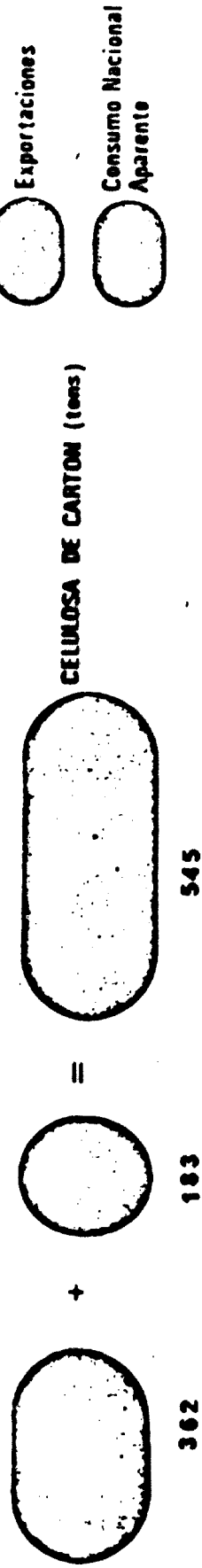
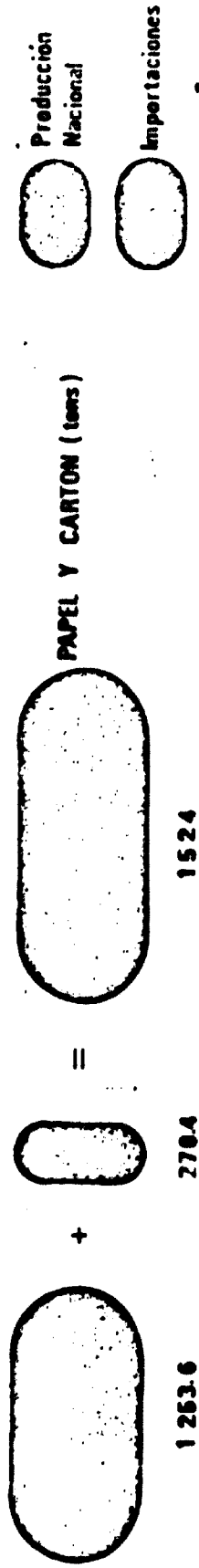
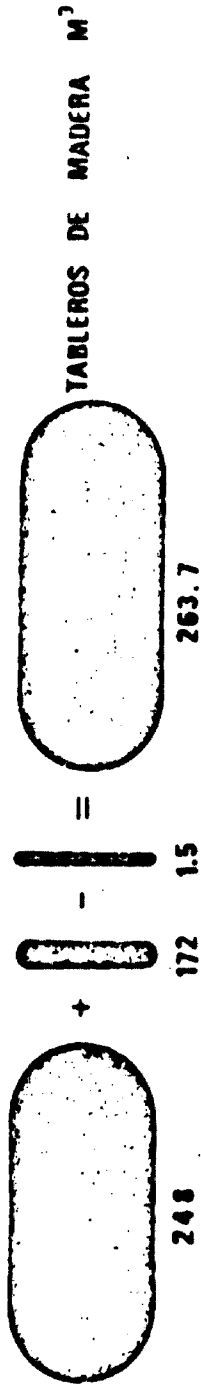
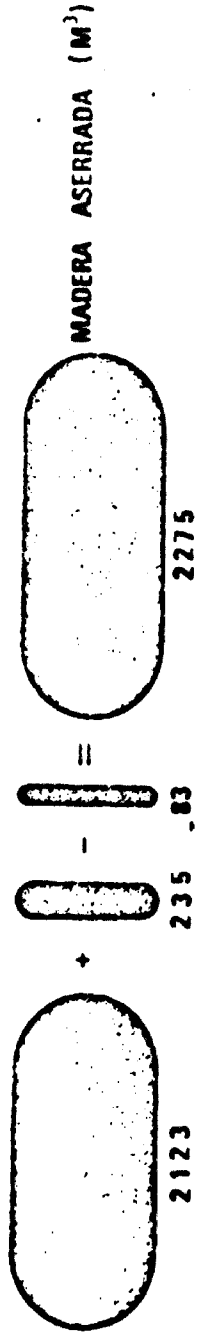


FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en datos de ANIFATA. Cámara de las Industrias del Papel e Investigación directa.

◆ INCLUYE RESINA, BREA Y AMONÍAC

Consumo Nacional Aparente de la Industria Forestal 1974

UNIDADES . EN MILES



Producción
Nacional

Importaciones

Exportaciones

Consumo Nacional
Aparente

FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal en base a los datos de ANA-FATA; Subsecretaría Forestal y de la Fauna; Cámara Nacional de las Industrias Derivadas de la Silvicultura e Investigación directa.

Inversión y Personal Ocupado en la Industria Forestal 1975

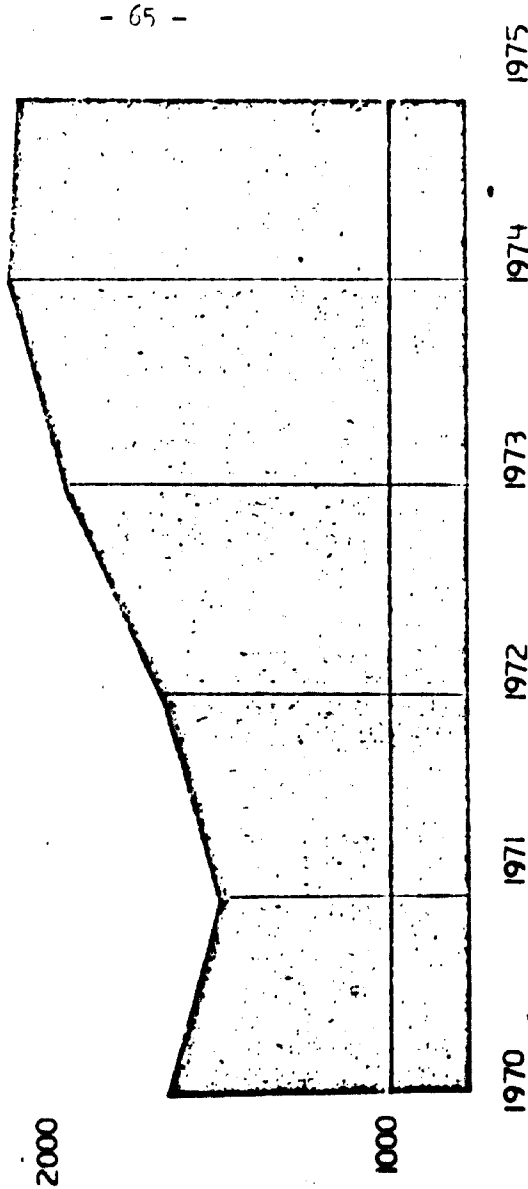
INDUSTRIA	INVERSIONES MILLONES DE PESOS	PERSONAL OCUPADO
ASERRIO	1.200	8.000
TABLEROS	900	5.600
CELULOSICOS	6.500	22.000
RESINA	300	20.000
BARBASCO	500	3.140
TOTAL	9.400	58.740

Fuente: Investigación directa del Departamento de Economía de la Dirección General para el Desarrollo Forestal, S.F.F., S.A.G.

PRODUCCION DE LA INDUSTRIA DE ASERRIO

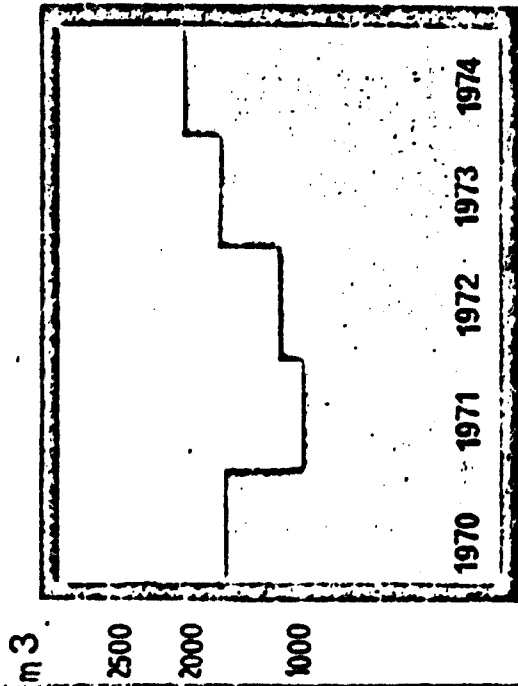
- 65 -

AÑO	PRODUCCION en M ³	VALOR DE LA PRODUCCION en miles de pesos
1970	1731	845,997
1971	1543	747,096
1972	1610	785,871
1973	1990	2008,182
1974	2123	2467,163
1975	2023	3039,176



FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en datos del Departamento Técnico y de Estadística de la Subsecretaría Forestal de

Consumo Nacional Aparente de la Industria de Aserrío



AÑO	PRODUCCION M ³	IMPORTACIONES M ³	EXPORTACIONES M ³	CONSUMO NACIONAL APARENTE 1960
1970	1734	278	49	1960
1971	1543	233	64	1712
1972	1610	253	116	1747
1973	1990	235	88	2137
1974	2123	235	83	2275

FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en datos del Departamento Técnico y de Estadística de la Subsecretaría Forestal y de la Fauna, SAG.

Principales Indicadores de Industria Forestal Mexicana

Industria/Grupo	Núm. personas por establecimiento	Remuneraciones por cápita	Producción por establecimiento	Producción de la mano de obra	Capital invertido por establecimiento	Producción de la inversión	Capital invertido por producción obtenida	Inversión por persona ocupada	Intensidad de capital	Utilización de insumos por unidad de producción	Valor agregado obtenido por unidad de producción
Arboles	111	11,340	5,743	13	0,003	1,30	0,00	44	23	20	00
Fab. envases madera y opacas	14	9,795	630	43	374	1,00	0,00	20	20	20	00
Fab. de muebles de madera y papel	8	13,000	400	50	271	1,30	0,30	20	20	20	00
Fab. de pasta de celulosa	272	25,165	60,000	253	20,000	0,20	1,00	200	6	00	20
Fab. de cartón	20	24,000	4,700	103	3,000	1,00	0,20	100	20	00	20
Fab. de envases de papel	61	20,716	11,000	170	7,000	1,00	0,20	120	0	20	20
Fab. de cajas e envases de cartón	51	20,074	0,200	103	0,20	1,20	0,20	120	0	00	20
Fab. de triplos, tableros aglomerados y fibranal	51	10,222	20,000	20	17,00	1,30	0,20	20	20	00	20
Fab. de productos de corcho	11	20,770	900	00	00	2,20	0,00	00	20	00	00

Fuente: Elaborado por el Departamento de Estadística de la Dirección General para el Desarrollo Forestal, S.F.P., S.M., sobre un Censo Industrial 1960

Equipo y Capacidad Instalada de los Aserraderos 1974

Relación de Equipos	Núm.
Sierras circulares	436
Sierras banda	435
Machihembradoras	46
Cabeceadoras	388
Desorilladoras	375
Cepilladoras	120
Molduradoras	36
Canteadoras	79
Trompos	41
Tornos	10
Fuerza motriz eléctrica	237
Combustión	367
Vapor	24
Hidráulica	576
Otras máquinas	1,366
Otros motores	646
Vehículos de transporte	6,880

Valor del equipo de aserrío	\$805'863,905
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Fuente: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal, en base a los datos del Departamento Técnico y de Estadística de la S.F.F., S.A.G.

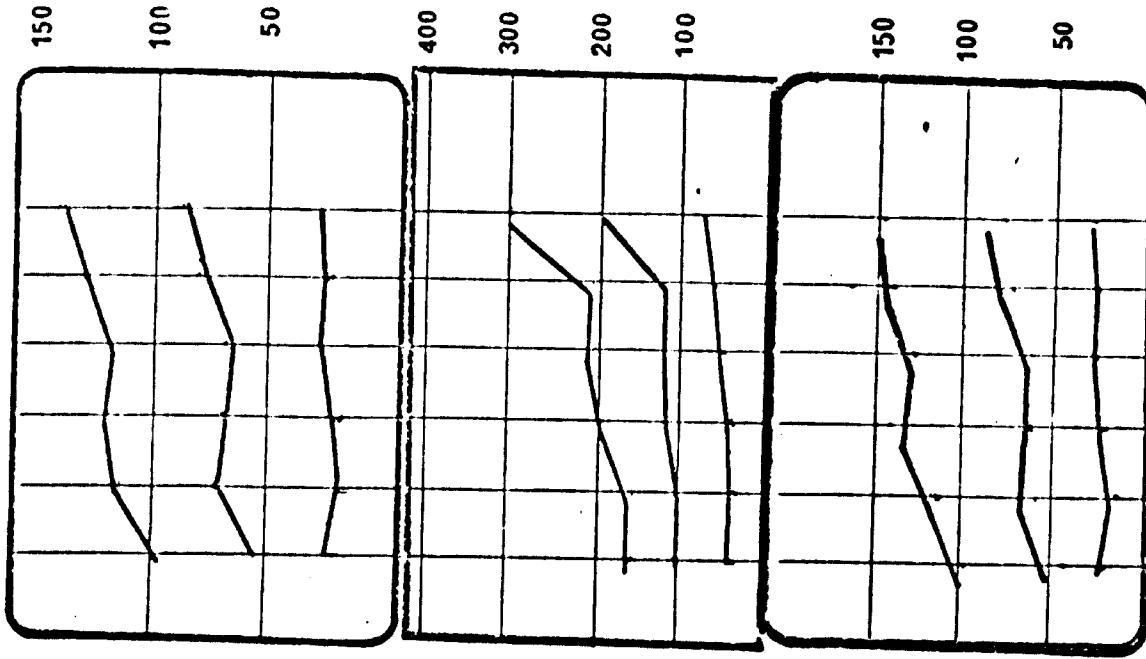
CAPACIDAD INSTALADA

Aserraderos %	Capacidad de producción MPT/Día
30	1-5
50	5-10
15	10-20
4	20-30
1	30 o más

Industria de los Tableros de Fibra

TRIPLAY
 AGLOMERADOS
 FIBRA DURA

miles m³



PRODUCCION

CONCEPTO	1970	1971	1972	1973	1974	1975
TRIPLAY	99 500	115 900	123 600	119 100	133 700	143 567
AGLOMERADOS	55 500	75 300	72 200	71 700	86 600	90 754
FIBRA DURA	26 000	20 500	24 300	28 000	27 700	31 498

CAPACIDAD INSTALADA

CONCEPTO	1970	1971	1972	1973	1974	1975
TRIPLAY	158 500	158 500	196 800	210 200	210 200	294 000
AGLOMERADOS	108 000	108 000	120 000	120 700	120 700	200 700
FIBRA DURA	30 000	30 000	30 000	33 000	33 000	39 000

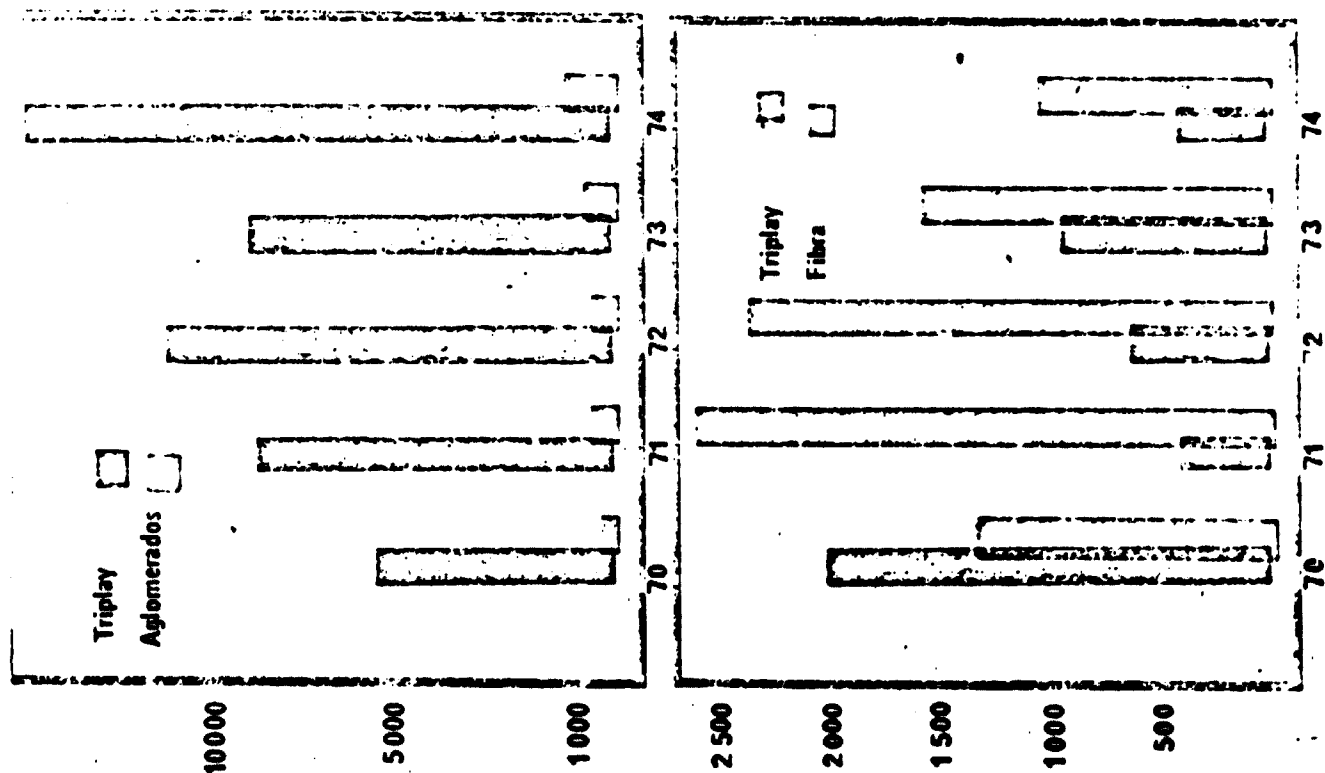
CONSUMO NACIONAL APARENTE

CONCEPTO	1970	1971	1972	1973	1974	1975
TRIPLAY	102 740	124 088	134 466	127 500	148 900	156 847
AGLOMERADOS	55 810	75 950	72 832	72 624	88 200	91 560
FIBRA DURA	24 660	17 890	21 810	26 400	26 600	29 519

FUENTE: Elaborado por el Departamento de Economía, Dirección General para el Desarrollo Forestal de la Subsecretaría Forestal y de la Fauna con base en datos de ANAFATA.

70 - 71 - 72 - 73 - 74 - 75

Comercio Exterior de los Tableros de Maderera en Años



AÑO	TRIPLAY		AGLOMERADOS		FIBRA	
	IMPOR-TACION	EXPOR-TACION	IMPOR-TACION	EXPOR-TACION	IMPOR-TACION	EXPOR-TACION
1970	5490	2250	310	—	—	1340
1971	8604	400	680	—	—	2610
1972	11500	624	656	—	—	2490
1973	9300	900	900	—	—	1600
1974	15600	400	1600	—	—	1100

FUENTE: Elaborado por el Departamento de Economía, Dirección General para el Desarrollo Forestal de la Subsecretaría Forestal y de la Fauna con base en datos de ANAFATA.

Producción de Celulosa de Madera por Tipos

Tons.

PRODUCTOS	1970		1971		1972		1973		1974		1975	
	Volumen	%	Volumen	%	Volumen	%	Volumen	%	Volumen	%	Volumen	%
Química de madera al sulfato blanqueada	84,830	26.6	85,281	27.6	93,955	28.7	86,332	25.0	106,457	29.4	112,378	31.0
Química de madera al sulfato sin blanquear	157,789	49.5	150,384	48.6	152,409	46.4	171,931	49.7	178,707	49.4	186,250	51.0
Química de madera al sulfito blanqueada	8,630	2.7	9,966	3.2	11,970	3.7	11,220	3.2	16,532	4.6	7,982	2.0
Química de madera al sulfito sin blanquear	1,733	0.5	1,757	0.6	7,300	2.2	15,663	4.5	1,942	0.5	6,906	2.0
Pasta mecánica de madera	66,028	20.7	61,997	20.0	62,354	19.0	60,672	17.6	58,498	16.1	50,706	14.0
TOTAL	319,010	100.0	309,385	100.0	327,988	100.0	345,818	100.0	362,136	100.0	364,276	100.0
Total producción * Celulosa de todos tipos	472,874		474,685		483,163		513,040		566,763		550,222	

* Incluye celulosa de madera, bagazo de caña, borra y plantaciones anuales (trigo y algodón)

Fuente: Cámara Nacional de las Industrias del Papel.

Consumo Nacional Aparente de Celulosa de Madera (Tons.)

AÑOS PRODUCTOS	1970	1971	1972	1973	1974
Química de Madera al Sulfato Blanqueada	131,685	109,624	118,095	157,072	177,706
Química de Madera al Sulfato sin Blanquear	180,014	163,492	165,408	210,022	217,072
Química de Madera al Sulfato Blanqueada	30,255	21,201	23,112	43,869	49,417
Química de Madera al Sulfato sin Blanquear	11,000	6,572	12,075	29,656	16,035
Pasta mecánica de madera.	88,566	79,528	89,198	85,866	85,687
T o t a l	441,520	380,417	407,888	526,485	545,917

Fuente: Cámara Nacional de las Industrias del Papel.

Producción de Papeles y Cartones

Tons.

PRODUCTOS	1970		1971		1972		1973		1974	
	Volumen	%	Volumen	%	Volumen	%	Volumen	%	Volumen	%
Papel para impresión y escribir excepto cubiertos*	122,204	13.6	125,158	13.8	141,031	14.4	148,892	13.4	190,052	15.2
Papel y cartoncillos cubiertos **	74,232	8.3	81,063	8.9	108,150	11.0	136,604	12.3	140,282	11.2
Cartoncillos y cartulinas	91,302	10.2	83,142	9.2	74,773	7.6	72,897	6.6	77,956	6.2
Papel para periódico	40,000	4.5	37,943	4.2	39,664	4.0	39,180	3.5	40,000	3.2
Papeles para sacos, bolsas y envolturas	198,378	22.1	185,978	20.5	180,457	18.4	208,836	18.8	216,110	17.2
Papel para cajas'	282,941	31.5	209,779	33.0	328,920	33.6	387,703	34.8	444,127	35.4
Papel higiénico y facial	56,256	6.3	58,392	6.4	70,985	7.2	88,015	7.9	99,752	8.0
Otros papeles	31,374	3.5	36,366	4.0	37,147	3.8	30,531	2.7	45,409	3.6
TOTAL	896,687	100.0	907,821	100.0	981,127	100.0	1'112,658	100.0	1'253,688	100.0

* Incluye producción de papel para libro de texto gratuito.

** Couché

Fuente: Cámara Nacional de las Industrias del Papel

Consumo Nacional Aparente de Papeles y Cartones (Tons.)

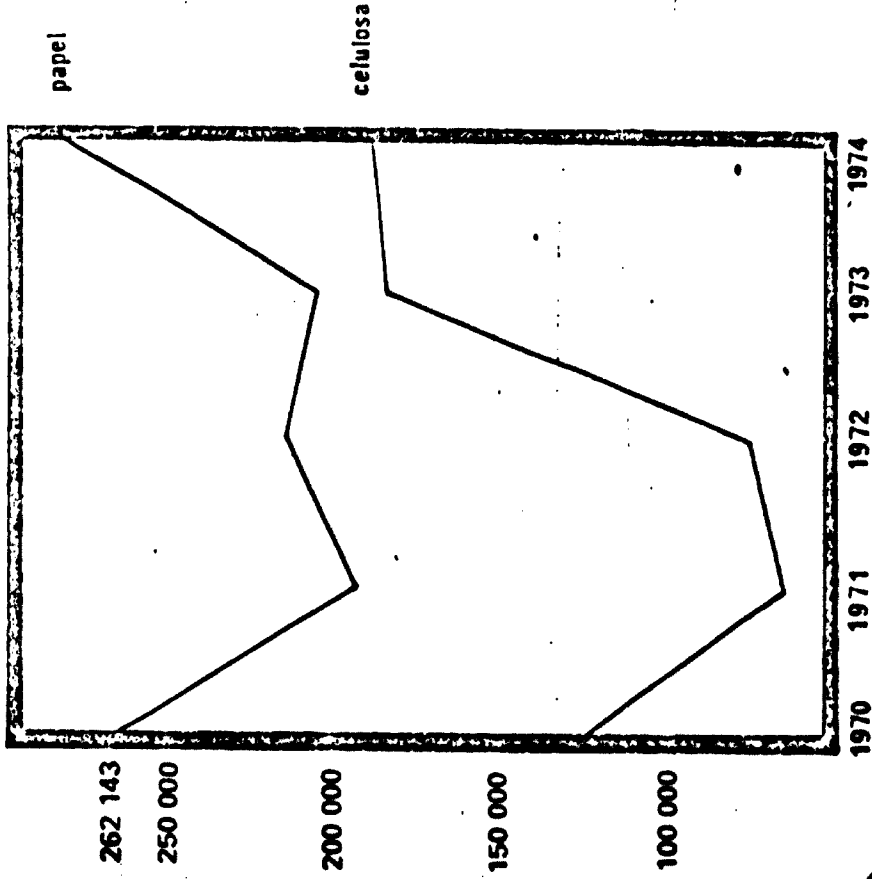
PRODUCTOS	A Ñ O S				
	1970	1971	1972	1973	1974
Papel para impresión y escritura.	125,092	128,773	145,705	153,983	195,450
Papeles y Cartoncillos cubiertos.	80,514	87,009	117,772	143,492	149,998
Cartoncillos y cartulinas	96,078	90,499	80,092	78,549	84,433
Papel periódico.	280,867	206,373	208,544	192,395	256,417
Papel para sacos, bolsas y envolturas.	198,574	188,502	180,749	209,105	216,380
Papel para cajas.	282,941	299,779	328,920	387,703	444,127
Higiénico y facial	56,256	58,397	71,060	88,604	100,831
Otros papeles	38,508	41,760	57,275	59,643	76,546
T o t a l	1'158,830	1'101,092	1'190,117	1'313,474	1'524,182

Fuente: Cámara Nacional de las Industrias del Papel.

Importaciones de Celulosa y Papel en México

TONELADAS

PAPEL			
AÑO	PAPEL PERIÓDICO	OTROS PÁPELES	TOTAL
1970	240 867	21 276	262 143
1971	168 430	24 841	193 271
1972	168 880	40 110	208 990
1973	153 215	47 601	200 816
1974	216 417	53 977	270 394



CELULOSA	
AÑO	IMPORTACIONES
1970	125 516
1971	71 033
1972	79 899
1973	180 688
1974	183 781

FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en datos de la Cámara Nacional de las Industrias del Papel.

Precios Unitarios por m² y Espesor de Triplay y Fibracel

Precios L.A.B. Planta a Bodega Distribuidor
1975

ENCHAPADO CON AGLOMERADO		\$ X M2
Espesores		
2 mm.		8.00
3 "		11.00
4.5 "		15.00
6 "		19.00
7.5 "		25.00
10 "		32.00
12 "		38.00
16 "		48.00

TRIPLAY PINO 3, 5, 7 CAPAS		\$ X M2
Espesores		
3 mm.		35.00
4.5 "		40.00
6 "		44.00
9 "		56.00
12 "		66.00
16 "		80.00
19 "		88.00

F I B R A C E L		\$ X M2
Espesores		
Duro	3 mm.	22.65
"	4 "	26.80
"	5 "	30.35
"	6 "	32.00
Extraduro	3 "	27.25
"	5 "	35.00
"	6 "	37.85
Perfofel		30.05
Tablero	5 "	37.05
"	6.5 "	39.00
Tablatex	3 "	41.65
"	5 "	49.35

TRIPLAY MADERAS FINAS 3, 5, 7 CAPAS		\$ X M2
Espesores		
3 mm.		54.30
6 "		88.50
9 "		107.20
12 "		129.75
19 "		205.45
Tableros Enchapados		
12 mm.		116.55
19 "		141.15

Nota: Precios en maderas de primera clase.
Fuente: Investigación directa del Departamento de Econofa de la Dirección General para el Desarrollo Forestal, S.F.F., S.A.G.

Precios Unitarios de Celulosas, Papeles y Cartones

PRECIOS DE CELULOSA POR TIPO (1)
1974

Descripción	\$ X Ton
Celulosa al sulfato blanqueada	4,700.00
Celulosa al sulfato sin blanquear	3,700.00
Celulosa al sulfato blanqueada	6,860.00
Celulosa al sulfato sin blanquear	5,780.00
Pasta mecánica	4,750.00

PRECIOS DE LOS PRINCIPALES PAPELES Y CARTONES
1975

Papeles para escritura e impresión excepto cubiertos	Precios por Kg. L.A.B. planta mayoreo
Papel tipo bond A (2)	15.20
Papel tipo bond B	12.50
Papel tipo bond C	11.80
Papel tipo copia A	18.01
Papel tipo revolución A	9.60

Papeles y cartoncillos cubiertos y no cubiertos	
Papel ministro cartulina	14.51
Papel marquilla	13.24
Papel ledger	14.33
Papel bristol	14.04
Papel vellum	18.70
Papel couche	14.97
Papel rotocouche	14.09
Cartón corrugado 7 kg. (aumenta precio por peso)	3.60
Cartón liner 7 ka.	4.80

Papel periódico	
Importación Nacional	5.35
	4.65

(1) 10% más, aproximadamente en 1975

(2) La clasificación A, B, C, se realizó en base a las diversas calidades en el mercado
Fuente: Cámara Nacional de las Industrias del Papel e Investigación directa del Departamento de Economía de la Dirección General para el Desarrollo Forestal, S.F.F., S.A.G.

ACTIVIDAD FORESTAL EN EL CONTEXTO DE LA ACTIVIDAD ECONOMICA DEL PAIS

Dentro de la economía nacional, la actividad forestal, considerada desde los bosques hasta la industrialización de sus productos, no ha representado la importancia que le asigna su potencial de recursos, aunque sí ha destacado por su papel de apoyo a infinidad de actividades derivadas, por su calidad de generadora de ingresos en las zonas rurales más necesitadas por su capacidad de protectora de cuencas hidrológicas y por su característica de proteger y preservar la fauna silvestre.

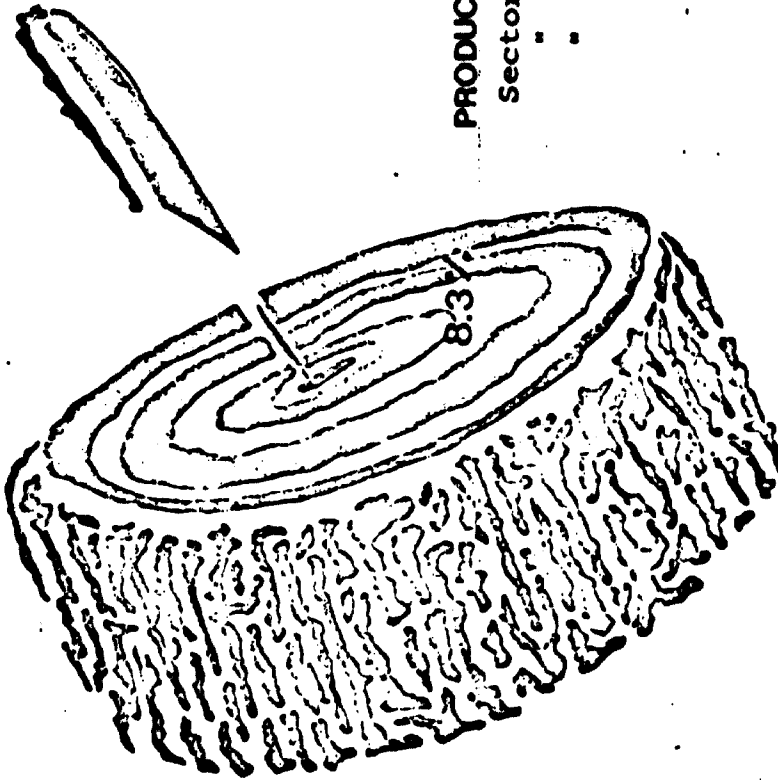
En 1975, participó con el 1.7 % del Producto Interno Bruto, lográndolo con una inversión acumulada, solamente en la industria, de 9,400 millones de pesos y donde la ocupación participó en 0.76 % del total de la población económicamente activa nacional.

En cuanto al déficit comercial con el exterior, la actividad forestal aportó el 6.8 % de dicho déficit en 1975, derivado principalmente del elevado monto de importación de celulósicos.

PRODUCCION

MILLONES DE PESOS*

1975



1.7%

ACTIVIDAD FORESTAL** \$ 14,160

Celulósicos	1,762
Maderable	3,758
No Maderable	430
Papel y cartón	7,314
Tableros	896

PRODUCTO INTERNO BRUTO NAL. \$ 812,900

Sector Primario	78,265
" Secundario	268,633
" Terciario	466,002

* precios corrientes

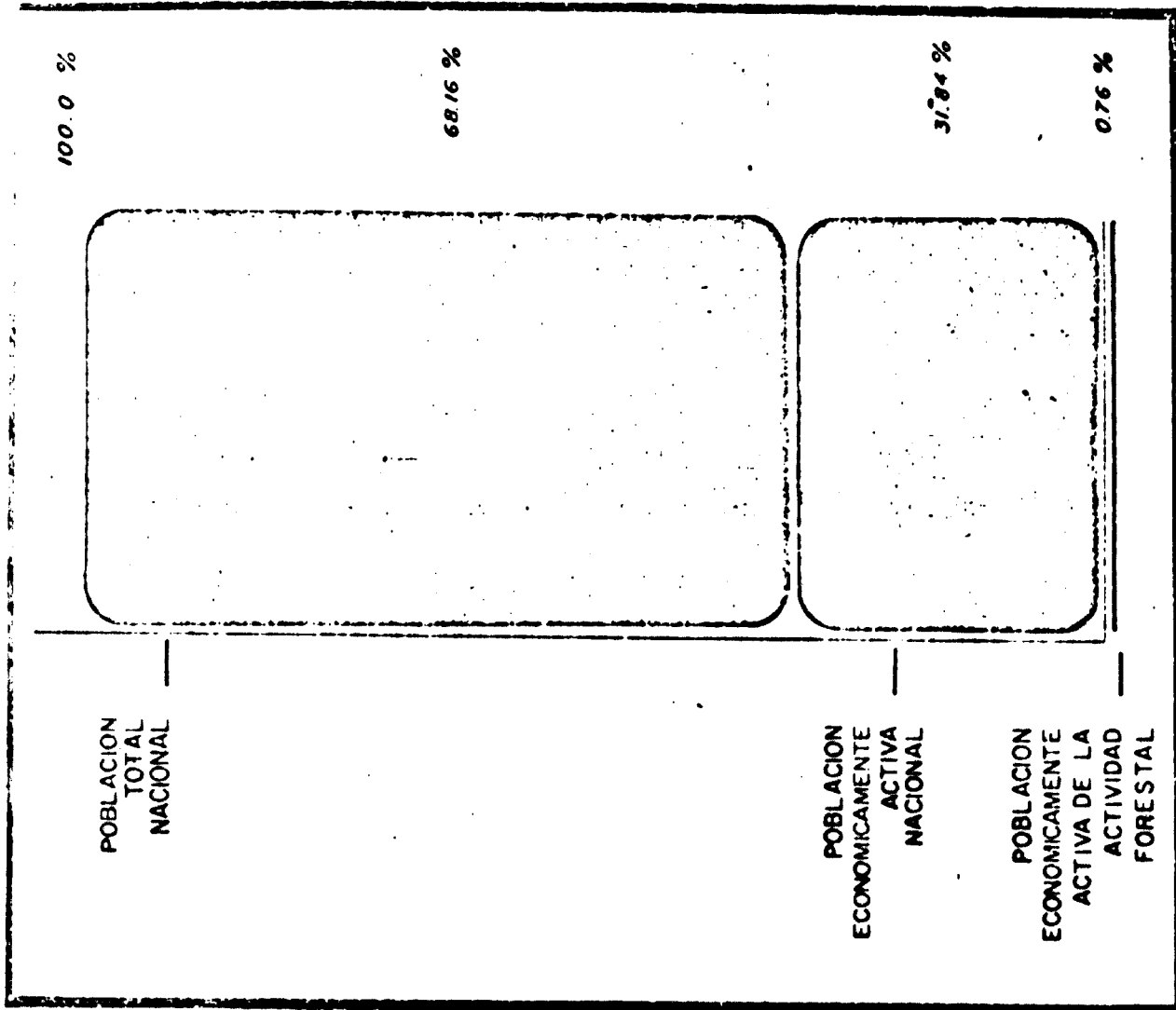
** incluye extracción e industria forestal

FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en la información del Informe Anual del Banco de México, Cámara Nacional de las Industrias del Papel, ANAFATA y Anuario de la Producción Forestal de México, Subsecretaría Forestal y de la Fauna, SAG.

POBLACION

1975

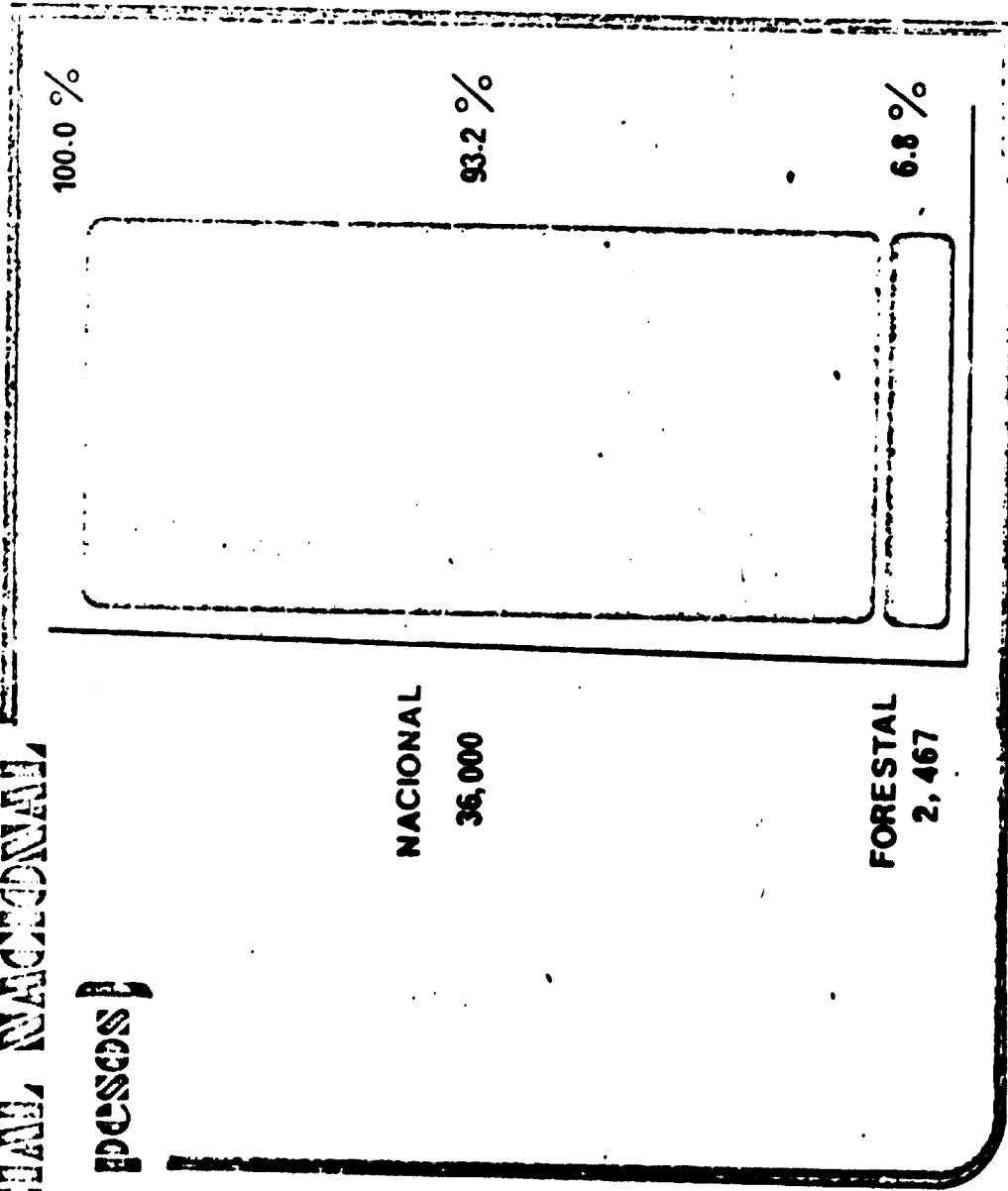
MILES DE PERSONAS



FUENTE: Elaborada por el Depto. de Economía de la D.G.E. en base a la información del Censo General de Población 1960-1970 D.G.E., S.I.C.

PARTECIPACION EN EL DEHECTO
COMERCIAL, FORESTAL EN EL
DEHECTO COMERCIAL NACIONAL

1975 (millones de pesos)



FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal con base en la información del Anuario Estadístico de Comercio Exterior (DGE, SIC) y del Informe Anual del Banco de México.

Personal Ocupado en el Sector Forestal 1974

ACTIVIDAD	NUM. DE PERSONAS	%	POBLACION BENEFICIADA
Abastecimiento de trocería y leñas	35,000	21.7	171,500
Aserrío	8,000	4.9	39,200
Tableros de Madera	5,600	3.5	27,440
Celulosa y Papel	22,000	13.6	107,800
Resina y Brea	20,000	12.4	98,000
Barbasco	3,140	1.9	15,386
Administración Forestal	5,000	3.1	24,500
Comercio y Transporte	22,383	13.9	109,677
Trabajadores eventuales en el sector	20,348	12.6	99,705
Otros (Recreación, Fauna y Carbón)	20,000	12.4	98,000
TOTAL	161,471	100.0	791,208

Fuente: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal, en base a datos de la ANAFATA, CNIP e investigación directa.

Requerimientos de Madera en Rollo 1975-1985

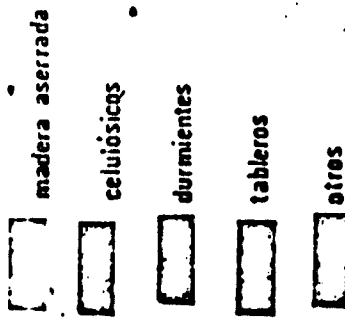
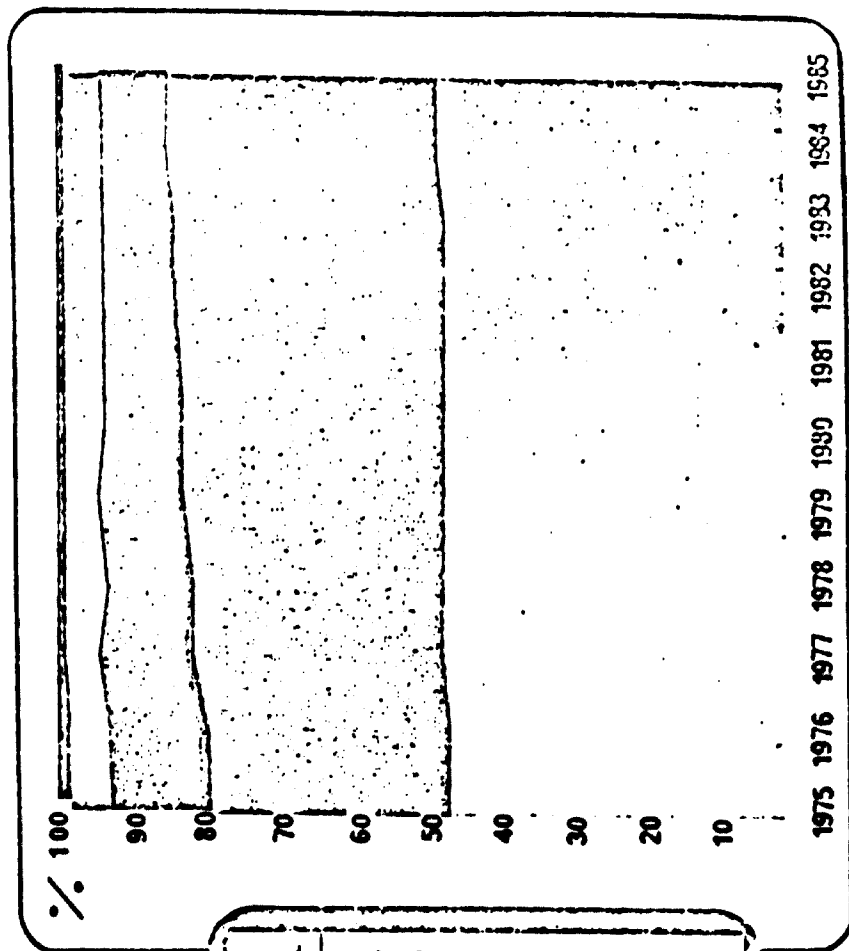
Las estimaciones para obtener la demanda futura se realizaron con base en el cálculo del consumo aparente de los productos forestales. Esta demanda, medida en metros cúbicos rollo, está representada por una serie ascendente, la cual manifiesta una tasa de crecimiento promedio de 4.6% a lo largo del período.

Del total de requerimientos de madera industrial (10.3 millones de M3r en 1975, 13.1 en 1980 y 16.5 en 1985) el grupo de productos aserrados seguirá constituyendo el renglón más importante de la demanda, llegando a representar el 47% del total de requerimientos de 1985; le sigue en importancia, el grupo de celulósicos con el 37% del total en el mismo año de 1985. Cabe mencionar que para el período proyectado, la rama forestal con mayor dinamismo de crecimiento será el de celulósicos, seguido por los tableros y la madera aserrada, medida en cuanto a la tendencia que muestra la participación de cada uno de estos grupos dentro del total de demanda, a lo largo del período 1975-1985.

Requerimientos de madera en FOMEC 1975-1985

miles de m³

AÑO	(1) MADERA ASERRADA	CELULOSICOS	DURMIENTES	(2) TABLEROS	(3) OTROS	TOTAL
1975	4642	3473	1462	547	154	10 278
1976	4084	3657	1462	583	161	10 747
1977	5136	3896	1462	618	164	11 276
1978	5404	4111	1462	657	173	11 830
1979	5684	4111	1462	645	181	12 385
1980	5980	4705	1462	732	191	13 071
1981	6290	4968	1462	771	200	13 691
1982	6616	5288	1462	811	211	14 388
1983	6960	5528	1462	850	220	15 020
1984	7320	5834	1462	890	231	15 737
1985	7700	6157	1462	930	242	16 491



- 1- INCLUYE: MADERA ASERRADA, ACEPILLADA, INDUSTRIALIZADA Y LABRADA
- 2- INCLUYE: TABLEROS AGLOMERADOS, DE FIBRA DURA Y TRIP-LAY
- 3- INCLUYE: POSTES Y OTROS PRODUCTOS ROLLIZOS NO ESPECIFICADOS

FUENTE: Elaborado por el Departamento de Economía de la Dirección General para el Desarrollo Forestal de la Subsecretaría Forestal y de la Fauna. SAG.

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